

ASAP

Work Order ID 123805

August-25-14 10:48:50 AM

\*123805\*

PRELIMINARY ISSUE

Page 1 ~1a  
RQ

Item ID: D119-796-241TRN

Accept

\*N9000040100\*

Setup Start \*NS1\*

Revision ID: PRELIM

Item Name: Crosstube Turning Detail

Stop \*NS2\*

Start Date: 8/25/14 Start Qty: 1.00

\*1\*

Cust Item ID:

Required Date: 8/25/14 Req'd Qty: 1.00

\*1\*

Customer:



Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D119-796-241

Rev. A  
14-08-25 29 14-09-02

100

0.00

\*100\*

MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs on both ends as per Folio FB298

2-Turn first side as per Folio FB298

3-Blend transition lines only, \*\*do not sand whole tube\*\*:

FOLIO REV: \_\_\_\_\_

DWG REV: A

\*Use mill bastard file, brush file repeatedly with file card.

\*Do not use sandpaper coarser than 320 grit.

110

QC1- Inspect dimensions to dimension sheet

0.00

\*110\*

QC

Memo

0.00

Quality Control

1 Ø   
 arm 2  
14/09/02

1 Ø   
 arm 1  
14/02/02

**Work Order ID 123805**

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**\*123805\***

Page 2

Item ID: D119-796-241TRN

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID: PRELIM

Stop **\*NS2\***

Item Name: Crosstube Turning Detail

Start Date: 8/25/14 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 8/25/14 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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120

0.00

**\*120\***

MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FB298

2-Blend transition lines only, \*\*do not sand whole tube\*\*:

\*Use mill bastard file, brush file repeatedly with file card.

\*Do not use sandpaper coarser than 320 grit.

FOLIO REV: \_\_\_\_\_

DWG REV: A

3-Remove sand and plugs

4- scribe batch # and part # as per dwg

130

0.00

**\*130\***

QC1- Inspect dimensions to dimension sheet

QC

Memo

0.00

Quality Control



**Work Order ID 123805**

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**\*123805\***

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Item ID: D119-796-241TRN

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID: PRELIM

Stop **\*NS2\***

Item Name: Crosstube Turning Detail

Start Date: 8/25/14 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 8/25/14 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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140

QC8- Inspect parts - second check

0.00

**\*140\***

QC

Memo

0.00

Quality Control

JW 14-09-08

145

0.00

**\*145\***

Crosstubes

Memo

0.00

Crosstubes

GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

mm 14/09/08

150

0.00

**\*150\***

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

1- PRESSURE WASH X-TUBE INSIDE AND OUT

2- ACID ETCH X-TUBE INSIDE AND OUT. USE RED SCOTCH BRITE

FSL/mm 14-09-08

# Work Order ID 123805

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**\*123805\***

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Item ID: D119-796-241TRN Accept **\*N9000040100\*** Setup Start **\*NS1\***  
 Revision ID: PRELIM Stop **\*NS2\***  
 Item Name: Crosstube Turning Detail  
 Start Date: 8/25/14 Start Qty: 1.00 **\*1\*** Cust Item ID:  
 Required Date: 8/25/14 Req'd Qty: 1.00 **\*1\*** Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC5- Inspect part completeness to step on W/O	0.00							
<b>*160*</b>									DAG
QC	Memo	0.00							38
Quality Control									14-9-8
170	Packaging	0.00							
<b>*170*</b>									
Packaging	Memo	0.00							
Packaging	Identify and stock in kanban rack								
	Location: _____								
180	QC21- Final Inspection - Work Order Release	0.00							
<b>*180*</b>									
QC	Memo	0.00							
Quality Control									

MLJ 14-09-11

MF 14-9-10

# Picklist Print

August-25-14 10:48:53 AM

Page 1

Work Order ID: 123805

\*123805\*

Parent Item: D119-796-241TRN

\*D119-796-241TRN\*

Parent Item Name: Crosstube Turning Detail

Start Date: 8/25/14

Required Date: 8/25/14

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV A RQ 14/05/27 VERIFIED BY DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6009-129		Manufactured	No			100	Each	42.5000	1	1			
*D6009-129*									**				
Crosstube Material													

Location

LG003

Loc Qty

42.5

Loc Code

10786

38.5

75627

3

75648

1

1 mm 12/08/27

POSITIVE RECALL

EFFECTIVE 140825 AUTH

RELEASED DATE

RR. N/A

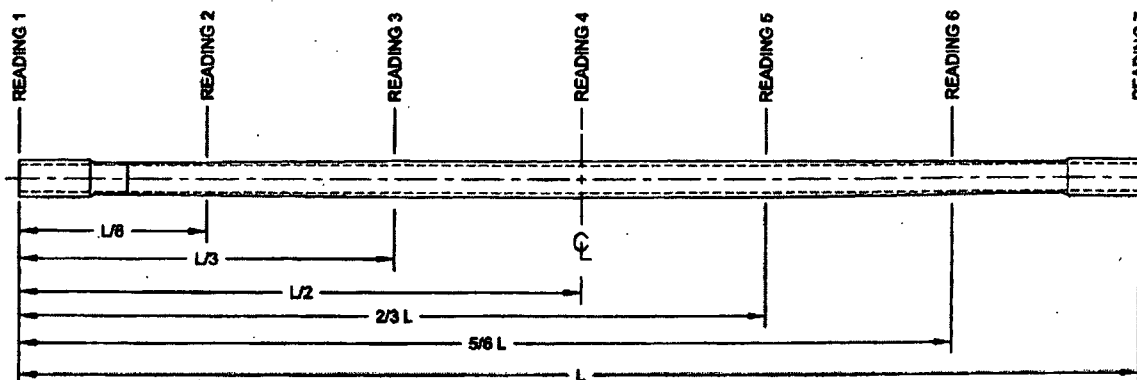
<b>DART AEROSPACE LTD</b>	<b>Work Order:</b> 123 805
<b>Description:</b> Crosstube Assembly	<b>Part Number:</b> D119-776-241
<b>Inspection Dwg:</b> D119-776-241/Rev: A	<b>Page 1 of 2</b>

### FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A						
	2.516	±0.005	2.519	✓	vern	CNC-08
	2.516	±0.005	2.519	✓		
	2.626	±0.005	2.628	✓		
	2.627	±0.005	2.631	✓		
	2.798	±0.005	2.800	✓		
	2.799	±0.005	2.802	✓		
	2.989	±0.005	2.994	✓		
SIDE B	3.200	±0.005	3.203	✓		
	3.191	±0.005	3.196	✓	↓	
SIDE B						
	2.516	±0.005	2.519	✓	vern	CNC-08
	2.516	±0.005	2.519	✓		
	2.626	±0.005	2.628	✓		
	2.627	±0.005	2.631	✓		
	2.798	±0.005	2.800	✓		
	2.799	±0.005	2.802	✓		
	2.989	±0.005	2.994	✓		
	3.200	±0.005	3.202	✓		
	3.191	±0.005	3.194	✓	↓	
	105.71	±0.020	105.730	✓	type	LG-11

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 123805
<b>Description:</b> Crosstube Assembly		<b>Part Number:</b>
<b>Inspection Dwg:</b>	<b>Rev:</b>	<b>Page 2 of 2</b>

### WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation $\Delta w$ (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.147	.154	.164	.155	.017	
READING 2 L= 17	.197	.209	.206	.246	.059	
READING 3 L= 35	.301	.378	.355	.343	.054	
READING 4 L= 52	.486	.494	.566	.497	.08	
READING 5 L= 69	.323	.349	.355	.329	.032	
READING 6 L= 87	.220	.248	.253	.233	.033	
READING 7 L= 105	.144	.152	.162	.150	.018	

#### Calibration Result

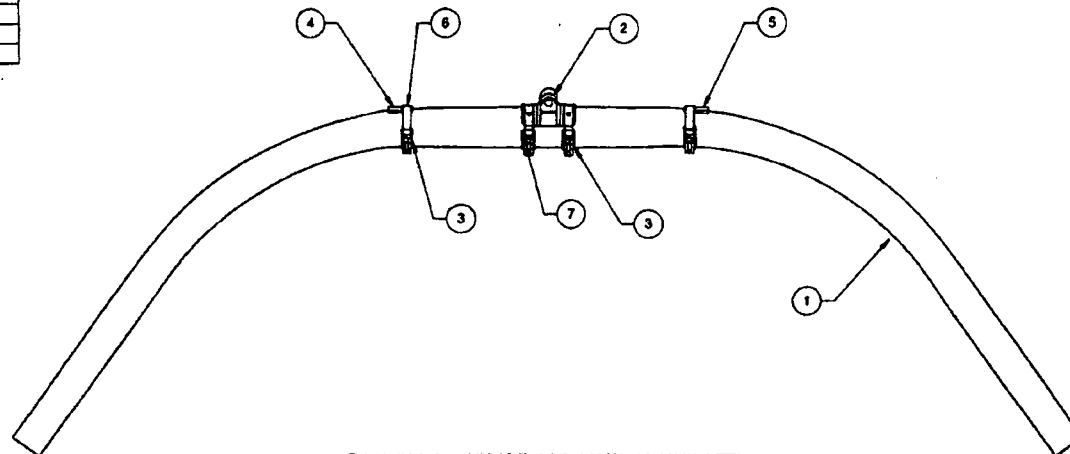
Actual Block Thickness: .100 .750

Sitiescan 250 Measured Thickness: .100 .750

<b>Measured by:</b> <i>gmm</i> <b>Date:</b> 14/09/08	<b>Audited by:</b> <i>JW</i> <b>Date:</b> 14-09-08	<b>Preliminary Approval:</b> <b>Date:</b>
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Rev	Date	Change	Revised by	Approved
B	10.04.14	Added preliminary approval	KJ	
C	12.06.01	Wall thickness form added	KJ	

ITEM	QTY	P/N	DESCRIPTION
	X	D119-796-241	XTUBE ASSY (AW119 MKII AFT)
1	1	D119-796-241BND	CROSSTUBE, AFT
2	1	D5122-1	CENTER SUPPORT
3	4	D5123-1	CLAMP CUSHION
4	1	D5136-1	CONTACT PAD, LH
5	1	D5136-2	CONTACT PAD, RH
6	2	MS21920-25	CLAMP
7	2	MS21920-28	CLAMP



**D119-796-241 XTUBE ASSY (AW119 MKII AFT)**

**NOTES:**

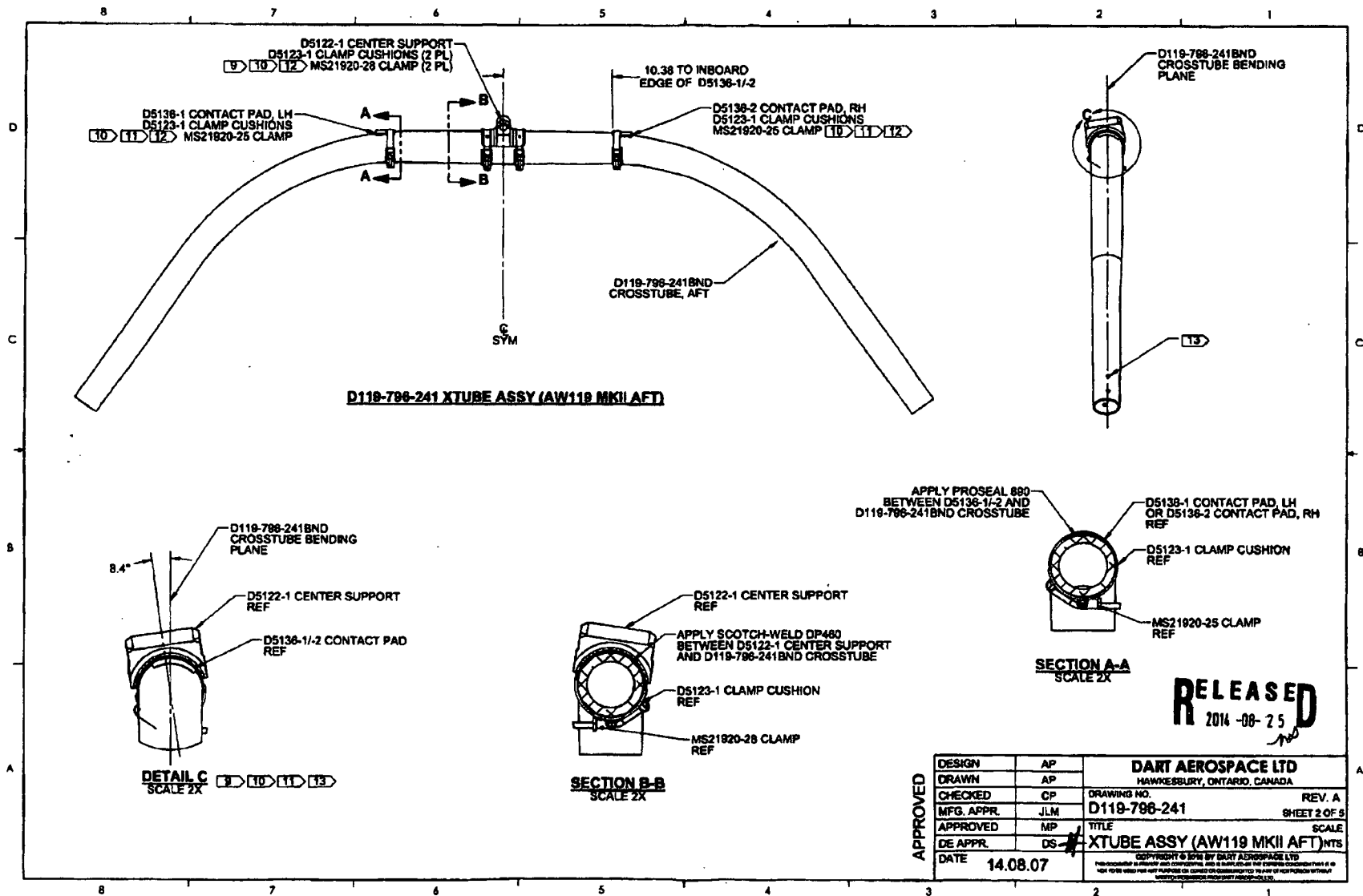
- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-241" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 8.4
- 7) WEIGHT: 28.26 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 9) INSTALL D5122-1 CENTER SUPPORT AT 8.4" OFFSET FROM THE CROSSTUBE BENDING PLANE USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP480 PER QSI 015. ENSURE OFFSET IS AS PER NOTE 13.
- 10) INSTALL MS21920 CLAMPS USING D5123-1 CLAMP CUSHIONS OFFSET AT 8.4" FROM CROSSTUBE BENDING PLANE. ENSURE THAT THE CLAMP TIGHTENING MECHANISM IS AT 90° TO THE CROSSTUBE BENDING PLANE AND THE NUTS FACE AFT.
- 11) APPLY A THIN LAYER OF PROSEAL 890 ON THE INSIDE CONCAVE SURFACE OF THE D5136-1/2 CONTACT PADS AND INSTALL AT AN 8.4" OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL MS21920-25 CLAMPS AND D5123-1 CLAMP CUSHIONS WHILE WET. ENSURE OFFSET IS AS PER NOTE 13.
- 12) TORQUE MS21920 CLAMPS 80 - 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 13) THE D5122-1 CENTER SUPPORT, D5123-1 CLAMP SUPPORTS AND D5136-1/2 CONTACT PADS MUST ALL BE ORIENTED AT 8.4" TO THE CROSSTUBE BENDING PLANE. THE DIRECTION OF THE OFFSET IS DIRECTLY RELATED TO THE CUFF THRU HOLES. REFER TO SHEET 2 FOR DETAILS.

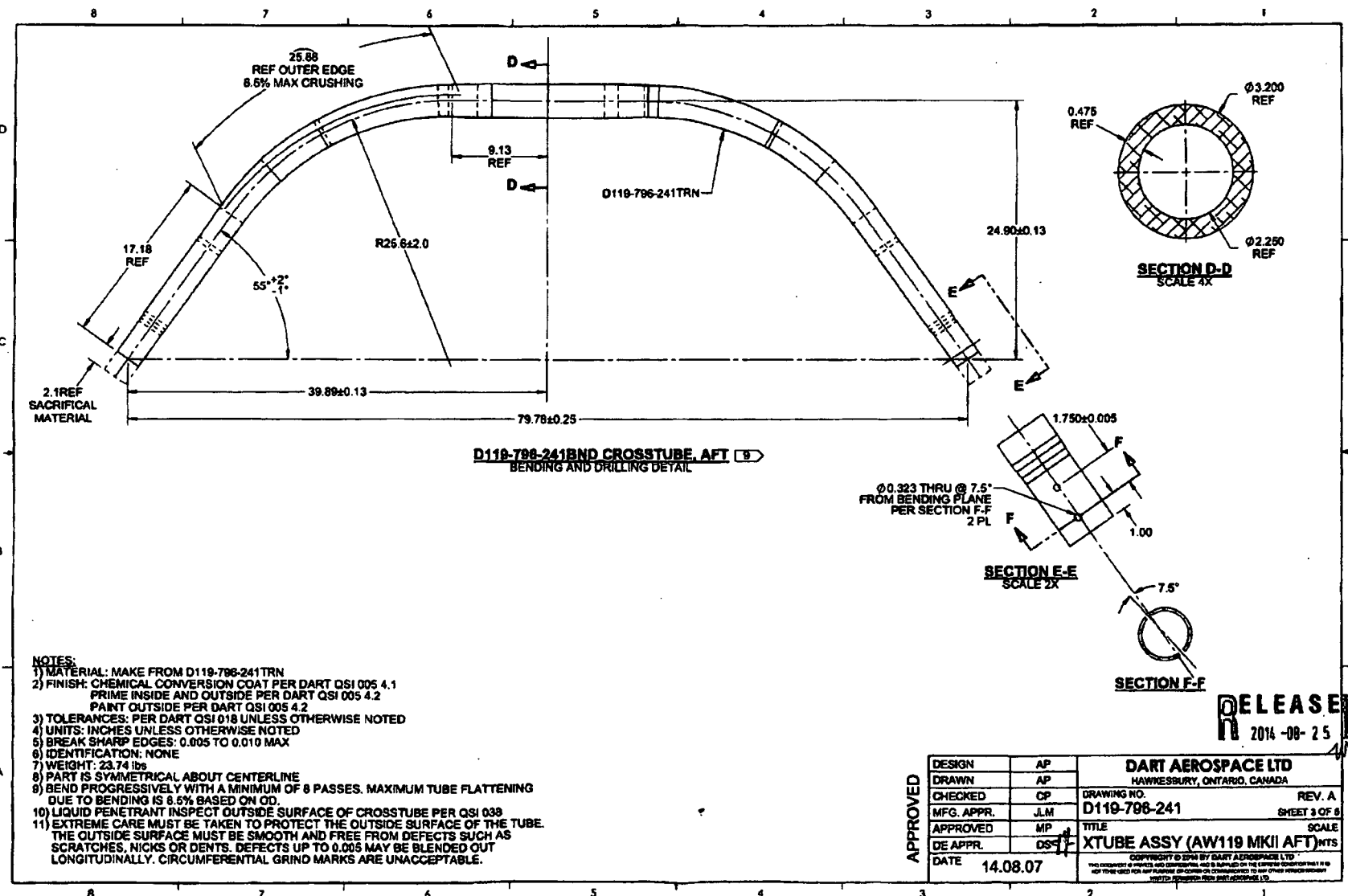
**RELEASED**  
2014-08-25

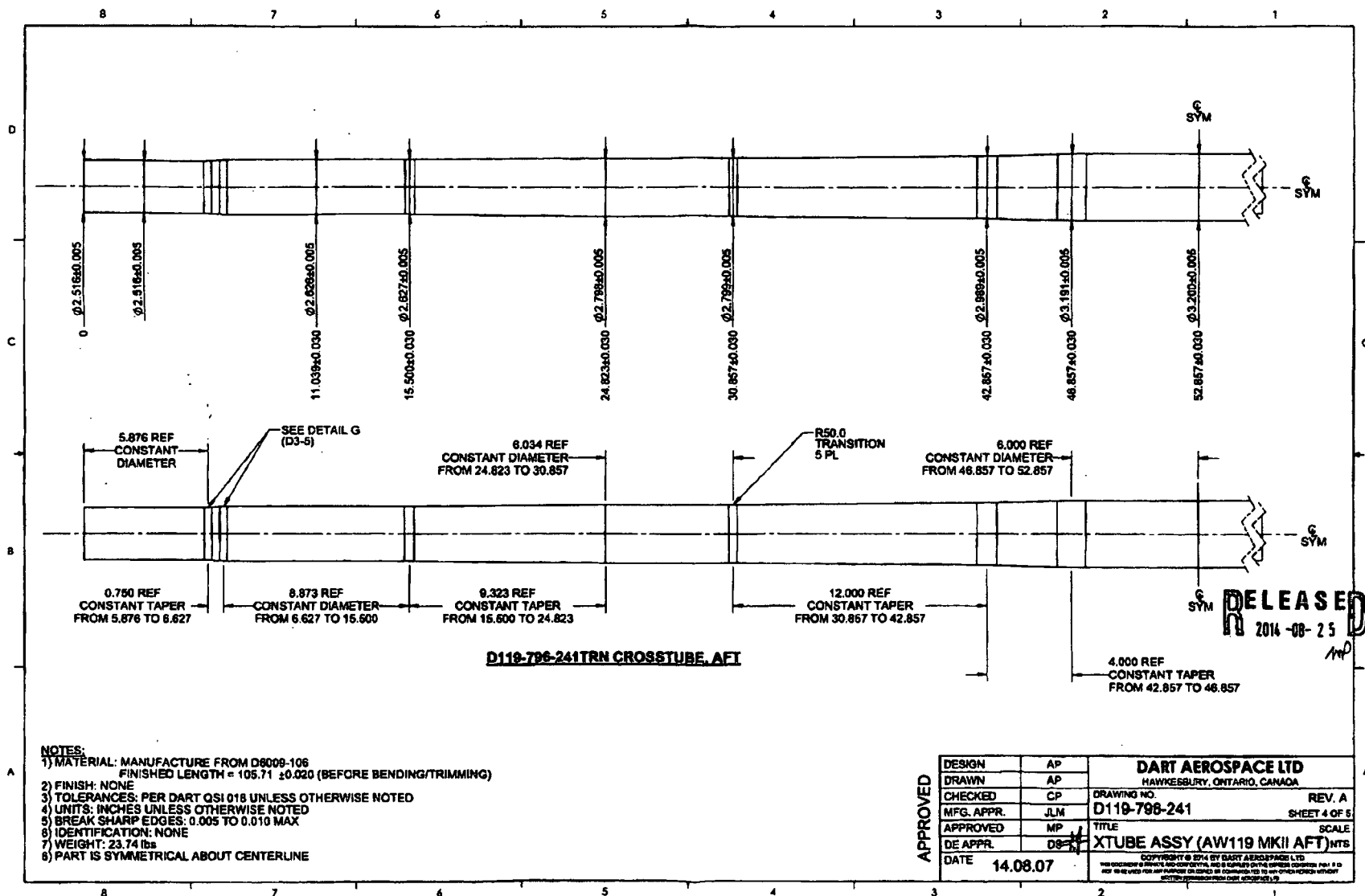
A		NEW ISSUE		AP	14.08.07
REV.	DESCRIPTION			BY	DATE
DESIGN	AP	<b>DART AEROSPACE LTD</b> HAWKESSBURY, ONTARIO, CANADA		REV. A	
DRAWN	AP				
CHECKED	CP	DRAWING NO.		SHEET 1 OF 5	
MFG. APPR.	JLM	D119-796-241			
APPROVED	MP	TITLE		SCALE	
DE APPR.	DS	XTUBE ASSY (AW119 MKII AFT) NTS			
DATE		14.08.07			

APPROVED









DESIGN	AP	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP		
CHECKED	CP	DRAWING NO.	REV. A
MFG. APPR.	JLM	<b>D119-796-241</b>	SHEET 4 OF 5
APPROVED	MP	TITLE	SCALE
DE APPR.	D8	<b>XTUBE ASSY (AW119 MKII AFT)</b>	MTS
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